APPENDIX 4-A

CAPITAL COST: HIGHWAY COMPONENT OF MODAL ALTERNATIVE

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The total capital costs for the highway component of the Modal Alternative are presented in Table 4-A-1.

Table 4-A-1
Highway Capital Cost

	Length		Average Cost		
Total Highway Cost	**km**	**miles**	**$/km**	**$/mile**	**Segment Cost***
Bay Area to Merced					
US-101: San Francisco to San Francisco Airport (SFO)	18.1	11.3	$71,580,000	$115,197,000	$1,297,000,000
US-101: SFO to Redwood City	22.2	13.8	$44,678,000	$71,902,000	$991,000,000
US-101: Redwood City to I-880	31.6	19.7	$43,887,000	$70,630,000	$1,388,000,000
I-880: US-101 to San Jose	1.4	0.9	$64,286,000	$103,459,000	$91,000,000
US-101: San Jose to Gilroy	50.2	31.2	$28,768,000	$46,298,000	$1,444,000,000
US-101: Gilroy to SR-152	2.3	1.4	$25,739,000	$41,422,000	$60,000,000
SR-152: US-101 to I-5	65.7	40.8	$10,850,000	$17,462,000	$713,000,000
SR-152: I-5 to SR-99	69.0	42.8	$13,299,000	$21,403,000	$917,000,000
I-80: San Francisco to I-880	14.7	9.2	$39,143,000	$62,994,000	$577,000,000
I-80: I-880 to I-5 (Sacramento)	139.5	86.7	$39,884,000	$64,187,000	$5,562,000,000
I-880: I-80 to I-238	22.3	13.8	$48,376,000	$77,854,000	$1,077,000,000
I-580: I-880 to I-5 (via I-238)	84.8	52.7	$28,104,000	$45,229,000	$2,382,000,000
I-880: I-238 to Fremont/Newark	23.3	14.5	$42,411,000	$68,254,000	$987,000,000
I-880: Fremont/Newark to US-101	20.0	12.4	$39,329,000	$63,293,000	$786,000,000
Segment Subtotal Cost					$18,270,000,000
Sacramento to Bakersfield					
I-5: I-80 to Stockton	81.4	50.6	$17,494,000	$28,154,000	$1,424,000,000
I-5: Stockton to I-580/SR-120	41.5	25.8	$13,316,000	$21,430,000	$553,000,000
I-5: I-580/SR-120 to SR-152	84.4	52.4	$29,231,000	$47,042,000	$2,466,000,000
I-5: SR-152 to SR-99	299.3	186.0	$9,266,000	$14,912,000	$2,773,000,000
SR-99: I-5 to SR-58	38.1	23.6	$20,131,000	$32,398,000	$766,000,000
SR-99: Sacramento to SR-120	100.8	62.6	$25,106,000	$40,404,000	$2,530,000,000
SR-99: SR-120 to Modesto	23.3	14.5	$31,823,000	$51,214,000	$743,000,000
SR-99: Modesto to Merced	62.8	39.0	$20,565,000	$33,096,000	$1,291,000,000
SR-99: Merced to SR-152	34.6	21.5	$11,804,000	$18,996,000	$408,000,000
SR-99: SR-152 to Fresno	53.7	33.4	$24,539,000	$39,492,000	$1,318,000,000
SR-99: Fresno to Tulare/Visalia	74.7	46.4	$18,873,000	$30,373,000	$1,409,000,000
SR-99: Tulare/Visalia to SR-58	110.8	68.9	$20,835,000	$33,530,000	$2,309,000,000
Segment Subtotal Cost					$17,990,000,000

Total Highway Cost	Length km	Length miles	Average Cost $/km	Average Cost $/mile	Segment Cost*
Bakersfield to Los Angeles					
I-5: SR-99 to SR-14	104.6	65.0	$20,774,000	$33,433,000	$2,173,000,000
I-5: SR-14 to I-405	4.1	2.5	$207,602,000	$334,102,000	$844,000,000
I-5: I-405 to Burbank	24.6	15.3	$54,206,000	$87,237,000	$1,335,000,000
I-5: Burbank to Los Angeles	12.0	7.4	$108,317,000	$174,319,000	$1,297,000,000
SR-14: Palmdale to I-5	56.1	34.8	$22,403,000	$36,054,000	$1,256,000,000
Segment Subtotal Cost					$6,910,000,000
Los Angeles to San Diego via Inland Empire					
I-10: I-5 to East San Gabriel Valley	46.1	28.6	$42,346,000	$68,149,000	$1,952,000,000
I-10: East San Gabriel to Ontario Airport	24.3	15.1	$61,030,000	$98,217,000	$1,483,000,000
I-10: Ontario Airport to I-15	4.5	2.8	$81,906,000	$131,815,000	$371,000,000
I-10: I-15 to I-215	23.0	14.3	$33,638,000	$54,135,000	$774,000,000
I-15: I-10 to I-215	74.6	46.3	$31,226,000	$50,254,000	$2,329,000,000
I-215: Riverside to I-15	56.0	34.8	$32,554,000	$52,391,000	$1,824,000,000
I-215: I-10 to Riverside	10.9	6.8	$41,019,000	$66,014,000	$449,000,000
I-15: I-215 to Temecula	8.1	5.0	$14,667,000	$23,604,000	$119,000,000
I-15: Temecula to Escondido	42.9	26.7	$12,637,000	$20,337,000	$542,000,000
I-15: Escondido to Mira Mesa	24.8	15.4	$34,239,000	$55,102,000	$849,000,000
I-15: Mira Mesa to SR-163	6.6	4.1	$60,128,000	$96,767,000	$396,000,000
SR-163: I-15 to I-8	12.3	7.6	$92,229,000	$148,428,000	$1,134,000,000
Segment Subtotal Cost					$12,220,000,000
Los Angeles to San Diego via Orange County					
I-5: Los Angeles to I-10	1.2	0.8	$256,915,000	$413,464,000	$311,000,000
I-5: I-10 to Norwalk	33.3	20.7	$56,926,000	$91,613,000	$1,897,000,000
I-5: Norwalk to Anaheim	13.1	8.1	$71,388,000	$114,888,000	$934,000,000
I-5: Anaheim to Irvine	16.2	10.0	$101,122,000	$162,741,000	$1,634,000,000
I-5: Irvine to I-405	4.2	2.6	$175,301,000	$282,120,000	$739,000,000
I-5: I-405 to SR-78	68.9	42.8	$30,594,000	$49,236,000	$2,107,000,000
I-5: SR-78 to University Towne Centre (UTC)	40.5	25.2	$33,337,000	$53,650,000	$1,351,000,000
I-5/I-8: UTC to San Diego Airport	14.5	9.0	$87,271,000	$140,449,000	$1,268,000,000
I-8: SR-163 to I-5	3.9	2.4	$105,876,000	$170,391,000	$413,000,000
Segment Subtotal Cost					$10,650,000,000
Total Cost					**$66,000,000,000**

* Calculated based on metric (km) units

Highway Cost Element Description

A. HIGHWAY ALIGNMENT COST

Main Line
The number of additional lanes and lengths of segments was based on the *System Alternatives Definition Report*.

Pavement-AC (Asphalt Concrete): It is assumed per typical California Department of Transportation (Caltrans) design and construction practices that one-third of all new pavement widening would be AC pavement. This would account for widening existing AC segments that are in good condition. If existing AC pavement is in poor condition, Portland Cement Concrete (PCC) would be used for the new widening.

Pavement-PCC: It is assumed per typical Caltrans design and construction practices that two-thirds of all new pavement widening would be PCC pavement. Segments that have a separate elevated highway facility would be assumed to be PCC.

The unit cost for the structural section for both AC and PCC pavement was based on information from the Caltrans Contract Cost Data Book as applied to other recent studies.

Separate Aerial Structure: As discussed in Chapter 4 *Costs and Operations,* aerial structures are assumed to be required in highway segments that are wider than 12 total lanes. Any additional lanes are defined as a separate aerial facility. The aerial structure is assumed to be 4 total lanes 86 ft (26.21 m) wide, and the unit cost was derived from the Caltrans Comparative Bridge Costs January 2002.

Earthwork: The general category of earthwork is made up of four constituent activities: excavation, embankment, spoil, and borrow. Earthwork incidental to the construction of a structure, such as the excavation for a bridge foundation, would not be included here; that cost is a part of the interchange unit cost.

For all segments, an average depth of 3.28 ft (1.0 m) of earthwork was assumed for new highway widening.

At this preliminary stage of definition, there is insufficient data regarding the hypothetical highway improvements to estimate the earthwork required on the segments in mountainous terrain. Thus, this estimate does not include the entire earthwork volume necessary to widen certain highway segments through mountain crossings (I-5 Grapevine, SR-152).

This cost includes clearing and grubbing, which covers the removal of unsuitable surface debris and removal of vegetation. This also includes the cost of grading, which is the movement of dirt around the site to prepare the surface for construction. This cost also includes site preparation, which includes work done to make the site usable after the demolition of existing structures.

The unit cost for earthwork was based on information from the Caltrans Contract Cost Data Book as applied to other recent studies.

Other
Included in the detailed categories below are all of the highway elements and other items related to highway widening. The unit cost for these items was calculated for cost per centerline kilometer. The unit cost used was based on previous experience of the consultant team, which has extensive experience in highway design and construction in California, the Caltrans Contract

Cost Data documents, and previous experience of the consultant team on recent major investment study (MIS) level urban highway improvement projects.

Overhead Signs: The overhead sign quantity was determined by assuming the replacement of two overhead signs per interchange for both directions. Overhead signs at major freeway-to-freeway interchanges were included in major freeway-to-freeway interchange unit cost.

Drainage, Landscape, Signing, Signals, and Lighting: The drainage cost includes culverts and other structures needed for highway widening and cross-drainage purposes only. This was calculated as a percentage of the roadway cost.

Landscape includes areas alongside the highway right-of-way facility. The landscape along the highway includes the seeding of cut slopes and embankments.

The cost for roadside signs, signals, and lighting includes replacement of all minor roadside signs, new lighting, and new street signals. Cost was calculated by taking the average cost per km of these items.

Traffic Handling: The cost for traffic handling includes stage construction costs including temporary signage, striping, and pavement. Cost was calculated as a percentage of the roadway cost.

Miscellaneous Cost: Miscellaneous costs include such items as fencing, curbs, sidewalks, access ramps, and features needed to comply with the Americans with Disabilities Act (ADA). Cost was calculated as a percentage of the roadway cost.

City Street Relocation/Reconstruction: The cost for city street relocation and reconstruction assumed that some city streets would be impacted by the proposed widening. The unit cost is calculated by taking the average cost per km, and it is for construction only. Any right-of-way costs were included in the right-of-way portion of the cost estimate.

Removals: Removals generally include the existing shoulder pavement in areas where the freeway is to be widened. It is assumed that 20 ft (6m) per km of shoulder pavement would be removed for new freeway widening.

Surveillance, Control, and Communications: Items included in the unit cost for this category include CCTV cameras, changeable message signs, fiber-optic cable, and vehicle detection systems. This cost was calculated by taking the average application cost per km of these items.

Interchange

Interchanges along the defined intercity routes were quantified and categorized based on review of published highway maps and aerial images. Four general categories of interchanges were defined: major freeway-to-freeway interchange, overcrossing interchange, undercrossing interchange, and at-grade interchange. Through further review of aerial images, the interchanges were also classified by general land use density: urban, suburban, and undeveloped. While portions of the intercity routes traverse growing areas, no new interchanges are assumed to be added nor closed for this cost estimate, due to the speculative nature of the specific growth and improvement patterns.

The unit costs applied for these interchanges include all of the cost elements necessary to complete the construction of the interchanges, such as bridge cost, earthwork, traffic handling, right-of-way, mobilization, drainage, etc. The unit cost used was based on previous experience

of the consultant team, the Caltrans Contract Cost Data documents, and previous experience on recent MIS-level urban highway improvement projects.

Costs for pre-stressed reinforced concrete aerial structures include the bridge, as well as the abutment (for a bridge or viaduct). Cost for that bridge would consist of the excavation for the abutment including all wing walls and transition slabs. The foundation work would also be included, as well as the earthwork needed to construct the foundations. Waterway crossings that were calculated on a per-crossing basis are included under bridge costs. A unit cost was applied per length of aerial structure. Based on other recently constructed structures of similar dimension, a unit cost of $125 per sq ft of structure deck was used for all structures requiring spans less than 100 ft (30.48 m) and for heights exceeding 30 ft (9.1 m).

Interchange right-of-way is included in the unit cost of each interchange where appropriate. Right-of-way for each highway segment is calculated separately and is located in the right-of-way cost section.

The cost difference between the different types of interchanges is based on general land use density and the right-of-way unit price. It is assumed the interchange quantities and unit cost remain the same, and the only cost that changes is the right-of-way unit cost. For consistency purposes, the right-of-way unit costs applied are the same as those applied in estimation of cost for the High-Speed Train (HST) Alternative.

Highway urban, suburban, and undeveloped right-of-way unit costs for the Modal Alternative are the same as dense urban, dense suburban, and undeveloped right-of-way categories used for the proposed HST Alternative.

The types of interchanges and the assumptions made for each are further described below.

Major Freeway-to-Freeway Interchange: A unit cost was developed based on an average cost of several major-freeway-to-freeway interchanges. This unit cost includes pavement, earthwork, overhead signs, drainage, landscape, light, signals, traffic handling, city streets relocation/reconstruction, removals, surveillance, control and communications, mobilization, and contingencies. It includes replacement of all structural bridges and aerial ramp connectors.

There is no design information available that indicates the number of bridges that would need to be replaced, so it has been assumed that half of all overcrossings would require bridge replacement due to insufficient span to accommodate the widening improvements or other issues (i.e., vertical clearance limitations and seismic acceptability). The remaining half of the overcrossings are assumed to be in good condition and have enough space and vertical clearance to allow for a highway lane addition where it would be required.

Overcrossings are separated into four types.

Overcrossing Full Interchange Replacement: Includes full replacement of overcrossing bridge, construction of new ramps, and street improvements.

Overcrossing Ramp Modification: No bridge replacement is necessary. Ramps would require minor improvements and modifications at the entrance and exit gore points. Ramp modifications are assumed to require half of the right-of-way, earthwork, and pavement quantities as a full replacement interchange. No street improvements are assumed.

Overcrossing Bridge Replacement: This includes overcrossing bridge replacement. For pavement and earthwork, it is assumed that 1000 ft (304.8 m) would be enough length to replace and

connect the new bridge with the existing street. The bridge is assumed to be four lanes wide. For earthwork, it is assumed that 1 ft (0.31 m) of excavation would be required to replace the old pavement. No overhead signs are included in the cost since this overcrossing is not an interchange. Bridge structure quantity is assumed to be the same as quantified in a full replacement interchange, except structure quantity does not included ramp work. Right-of-way is not assumed to be required for this type of overcrossing.

Overcrossing Bridge Modification: Cost includes minor overcrossing bridge modifications. Existing bridge is assumed to be in good condition and would remain in place. However, there is still necessary work (i.e., earthwork, tie-back walls, and retaining walls) that needs to be performed in order to allow any highway widening. It is assumed that the highway would be widened by two lanes, and it would require a tie-back wall or retaining wall of 80ft (24.4 m) long by 12 ft (3.6 m) high. This cost does not include any street improvements, overhead signs, or traffic handling. No right-of-way is assumed to be required to do any bridge modification. The right-of-way required for the highway widening would be accounted for in the right-of-way section.

The assumptions for undercrossing interchanges are a little different than those assumed for an overcrossing. In an undercrossing, the span width of the highway bridge is dependent on the general land use density of the area. For this cost estimate purpose, it is assumed that urban, suburban, and undeveloped have six, four, and two undercrossing lanes, respectively. It is possible that in some cases a highway bridge would require full replacement due to a vertical clearance problem. For this cost estimate, it is assumed that 100% of all undercrossings can be widened without full bridge reconstruction.

Undercrossing interchanges are separated into three categories.

Undercrossing Freeway Widening & Ramp Modification: It is assumed that the bridge is in good condition and meets vertical clearance requirements after the highway bridge is widened to allow for an additional one lane on each side. The length of the bridge is assumed to be 100 ft (30.48 m) long, and the bridge widening is 12 ft (3.6 m) on each side. Ramps would require minor improvements and modification at the entrance and exit gore points. Half of the right-of-way, earthwork, and pavement quantities from the full replacement interchange are assumed to be required to do this type of interchange. No street improvements are necessary.

Freeway Bridge Widening (No Interchange): The highway bridge is assumed to be in good condition and meet vertical clearance after widening of the bridge for an additional one lane on each side of the highway. The length of bridge is assumed to be 100 ft (30.48 m), and the bridge widening is 12 ft (3.6 m) on each side. Pavement and earthwork is assumed to be 100 ft (30.48 m) long by 24 ft (7.3 m) wide by 1 ft (0.31m) deep. No additional right-of-way is necessary to widen the bridge. Right-of-way for highway widening would be accounted for in the right-of-way section.

There are a few interchanges that do not have an overcrossing or undercrossing bridge. For these types of interchanges, an at-grade interchange type was developed. An at-grade interchange cost includes cost for highway ramp connectors but does not include any bridge cost. Only one option was developed for each general land use density region.

At-Grade Interchange Modification: Pavement and earthwork are required to modify ramp connections. No additional right-of-way is assumed to be needed to perform ramp modifications. Unit cost includes street improvement, traffic handling, drainage, landscape, and lighting.

Utility Relocation: This is estimated at a per center-line km cost. This includes the cost of major utility relocations that must be done before constructing the facilities, such as overhead power lines, pipelines, sewers, fiber optics, and underground ductbanks.

Based on the same general land use density classification used in differentiating interchange types, each highway segment was proportionally divided into urban, suburban, or undeveloped, based on the number of interchanges located in that particular highway segment. For consistency purposes, the utility relocation unit cost applied is the same as that applied in estimation of cost for the HST Alternative.

Highway urban, suburban, and undeveloped utility relocation cost is the same as the dense urban, dense suburban, and undeveloped categories for the HST Alternative.

B. RIGHT-OF-WAY ITEMS

This is the total cost associated with the purchase of land and/or easement rights for the highway widening. This includes relocation assistance and demolition costs. Property values and acquisition costs can range from quite modest in undeveloped areas to quite significant in areas where there are high-value commercial properties. These costs include those for title searches, appraisals, legal fees, title insurance, surveys, and various other processes.

Right-of-way unit cost was developed as a per-ha unit price. The basic unit cost assumes a minimum right-of-way width of 12 ft (3.6 m) for each required lane throughout the length of each highway segment. The length of each highway segment and the general land use category is based on the lengths derived in the utility relocation cost.

For consistency, the unit costs applied for highway urban, suburban, and undeveloped right-of-way are the same as the unit costs applied for dense urban, dense suburban, and undeveloped categories for the HST Alternative.

Right-of-way for interchange replacement and modification is not included as part of this cost but is included as an item in the interchange cost.

C. ENVIRONMENTAL IMPACT MITIGATION

This represents the total cost associated with potential mitigation of environmental impacts such as impacts to wetlands, parklands, biological resources, and wildlife habitat. This cost does not include noise mitigation (walls, barriers).

The total cost of environmental mitigation is estimated to be 3% of the construction costs (i.e., highway segment, pavement, earthwork, structures, etc.) for each segment. This factor is applied on the average to estimate a total cost of potential mitigation. This factor is not solely derived from highway projects; instead, it is applied to be consistent with the HST Alternative capital cost estimate.

D. PROGRAM IMPLEMENTATION COSTS

Costs for these elements are computed as a percentage of total construction and procurement costs. While specific percentage allocations may vary per type of infrastructure, total implementation costs as a percentage of the total project costs are similar. Therefore, the percentages applied are the same as those applied in the estimation of cost for the HST Alternative for consistency. The percentages are intended to represent the average overall cost of these implementation items, based on implementation of highway and other related improvement projects throughout the state. These costs are included in the cost estimates for overall consistency in the order of magnitude.

Preliminary Engineering and Environmental Review
These costs represent preliminary engineering to approximately a 35% design level. This includes geotechnical investigations, land surveying and mapping, engineering, architecture, landscape architecture, traffic engineering, right-of-way engineering, preparation of preliminary plans and analyses in all necessary technical disciplines, various other technical studies, and the draft and final environmental document. The environmental review would entail all studies and analyses necessary to complete any further federal and state required project-level environmental documents. (2.5%)

Program and Design Management
These costs represent the costs for the overall management and administration of the project. Included are program manager's office, contract management and administration, project control (including both cost and schedule), general administration, computer support, quality assurance, configuration management, system safety, publications, public relations, support of the bidding process, agency liaison, community information and involvement, and legal support. (5%)

Final Design
This includes costs for final design and preparation of construction and procurement documents for all facilities and systems. This would include geotechnical investigations, land surveying and mapping, engineering, architecture, landscape architecture, traffic engineering, right-of-way engineering, preparation of plans and specifications in all necessary technical disciplines, and various other technical studies and support of the final design process. Design support during construction, including shop drawing review, is also included in this item. (5%)

Construction and Procurement Management
This includes costs for all management of construction and procurement work after contracts are awarded to contractors or suppliers, including onsite inspection in factory and field, quality control, contract administration, and acceptance inspection. (5%)

Agency Costs
This includes costs of maintaining the owner's organization (probably Caltrans) (administrative and overhead) during the entire program, whether that owner is a franchisee or a government agency. (1%)

Force Account Costs
This includes costs for the services of other organizations or agencies of local, state, or federal government that may be required to support the project. (1%)

Risk Management
The costs of owner (probably Caltrans)-supplied insurance or any other allowances decided to be applied for the management of risk to the owner. (6%)

E. CONTINGENCIES

A contingency is added as a percentage of overall project costs, based on past experience for projects in early stages of definition. Contingencies should not be considered as potential savings. They are an allowance added to a basic estimate to account for items and conditions that cannot be assessed at the time of the estimate. The contingency amount is expected to be reduced as the project matures. The contingency is estimated at 25% of the total of construction costs.

Highway Unit Costs

Unit costs for each of the highway cost elements are presented in Table 4-A-2.

Table 4-A-2
Highway Unit Costs

		Highway Cost	Unit	Unit Price
Main Line				
	1	Number of additional lanes in both directions	ea	N/A
	2	Length of Highway	km	N/A
	3	Pavement-AC	m2	$48
	4	Pavement-PCC	m2	$65
	5	Separate Aerial Structure	m2	$1,346
	6	Earthwork	m3	$7
Other				
	1	Overhead Signs	ea	$20,000
	2	Drainage, Landscape, Signing, Signals, & Lighting	km	$1,180,605
	3	Traffic Handling	km	$347,968
	4	Miscellaneous Costs	km	$559,234
	5	City Street Relocation/Reconstruction	km	$329,327
	6	Removals	km	$323,113
	7	Surveillance, Control, & Communications	km	$124,274
Interchange (includes structure, right-of-way, and mobilization)				
	1	Major Freeway-to-Freeway Interchanges	ea	$177,525,000
	2	Urban Overcrossing Full Interchange Replacement	ea	$23,610,000
	3	Urban Overcrossing Ramp Modification	ea	$13,040,000
	4	Urban Overcrossing Bridge Replacement	ea	$9,610,000
	5	Urban Overcrossing Bridge Modification	ea	$200,000
	6	Suburban Overcrossing Full Interchange Replacement	ea	$18,200,000
	7	Suburban Overcrossing Ramp Modification	ea	$10,340,000
	8	Suburban Overcrossing Bridge Replacement	ea	$9,610,000
	9	Suburban Overcrossing Bridge Modification	ea	$200,000
	10	Undeveloped Overcrossing Full Interchange Replacement	ea	$16,170,000
	11	Undeveloped Overcrossing Ramp Modification	ea	$9,350,000
	12	Undeveloped Overcrossing Bridge Replacement	ea	$9,610,000
	13	Undeveloped Overcrossing Bridge Modification	ea	$200,000
	14	Urban Undercrossing Freeway Widening & Ramp Mod	ea	$20,050,000
	15	Urban Freeway Bridge Widening (No Interchange)	ea	$900,000
	16	Suburban Undercrossing Freeway Widening & Ramp Mod	ea	$14,825,000
	17	Suburban Freeway Bridge Widening (No Interchange)	ea	$900,000
	18	Undeveloped Undercrossing Freeway Widening & Ramp Mod	ea	$12,850,000

		Highway Cost	Unit	Unit Price
	19	Undeveloped Freeway Bridge Widening (No Interchange)	ea	$900,000
	20	Urban At-Grade Interchange Modification	ea	$3,100,000
	21	Suburban At-Grade Interchange Modification	ea	$3,100,000
	22	Undeveloped At-Grade Interchange Modification	ea	$3,100,000
Utility Relocation				
	1	Major Utility relocations - Urban	km	$758,511
	2	Major Utility relocations - Suburban	km	$406,345
	3	Major Utility relocations - Undeveloped	km	$11,919
Right-of-Way Items (Interchange Right-of-Way cost not included)				
	1	Right-of-way—Urban	Hectares	$3,499,093
	2	Right-of-way—Suburban	Hectares	$1,166,364
	3	Right-of-way—Undeveloped	Hectares	$291,591
Environmental Mitigation			3% of Construction Costs	
Program Implementation Costs			25.5% of Total Cost and Procurement	
Contingencies			25% of Total Construction Cost	